

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/592,898

06/13/00

BLACKHAM

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GJ-2123

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MM01/0424

EXAMINER

ART UNIT

PAPER NUMBER

2851

DATE MAILED:

04/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/592,898

Applicant(s)

BLACKHAM, GEOFFREY
HOWARD

Examiner

Magda Cruz

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2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: ____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in June 14, 1999 on United Kingdom. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "62" in Figure 9 has been used to designate both the curved front projection screen and the collimating mirror (page 22, lines 13-14). Correction is required.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: element 1, in Figure 1. Correction is required.

5. The drawings are objected to because in Figure 6 there is a shadow that hides the graph; in Figure 8, the block diagrams are illegible; Figure 12, is not clear the text in one of the block diagrams. Correction is required.

6. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect can be deferred until the application is allowed by the examiner.

Specification

7. The disclosure is objected to because of the following informalities: in Figure 1, there is not description of element 1; in Figure 9, element 62 is used for two different things, the curved front projection screen and the collimating mirror.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what the applicant means with "the screen being varied in shape and/or position to vary the image distance within the total field-of-view of the distant apparatus", how the screen is varied with respect to which element.

10. Claim 3 recites the limitation "the driver" in the last sentence of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Blackham.

Yoshikawa, et al. (US Patent Number 5,833,340) discloses a display apparatus comprising a front projection screen (Figure 17, element 1), at least one projector (Figure 17, elements 16a, 16b and 16c) which is for providing a display on the screen and which is positioned outside an enclosed display volume (Figure 17), the screen being varied in shape and/or position to vary the image distance within the total field-of-view of the distant apparatus (column 5, lines 29-47); which the screen of a shape and/or position that gives a short image distance on the observer's side, and in which this distance increases in straight-ahead and in kerb-side directions (Figure 17); which the shape of the screen is spherical (Figure 1, element 1), with a relative offset to an axis of the front projection surface being shifted to reduce the image distance on the driver's side (column 4, lines 1-4); which the projectors are fixed matrix projectors (Figure 17, elements 16a, 16b and 16c); which the projectors are such that they are in groups, with each group having at least two of the projectors (column 8, lines 50-56); an image generator means for generating images to be displayed on the screen (Figure 14); an optical blending means for optically blending overlapping images from the

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projectors (column 8, lines 57-65); a simulator, a visualization system or a virtual reality system including the display apparatus (Figure 19, element 31). Yoshikawa does not explicit state that the mirror is a collimating mirror.

Blackham (US Patent Number 6,042,238) teaches a curved collimating mirror (Figure 9, element 42) via which the image is viewed such that the image distance is greater than the radius of the mirror; which the shape of the screen is a complex aspherical shape (Figure 5); projectors that are arranged radially outside the screen (Figure 11).

It would have been obvious at the time the invention was made for one ordinary skilled in the art to use a collimating mirror and the screen with an aspherical shape (as the one disclosed by Blackham) in Yoshikawa's invention for the purpose of providing proper equivalent eye point positioning, and to arranged the projectors as explained by Blackham in Yoshikawa's invention to cover radially the are of the screen.

13. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Blackham in further view of Hegg.

Yoshikawa and Blackham teach the salient features of the claimed invention except for the digital distortion correction.

Hegg (US Patent Number 5,748,264) teaches a digital distortion correction means for removing distortion introduced by the optical configuration (column 3, lines 54-57); which said digital distortion correction means is positioned between the image generator means and the projectors (column 12, lines 44-52).

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It would have been obvious at the time the invention was made for one ordinary skilled in the art to use the digital distortion corrections, as the one disclosed by Hegg, for the purpose of reducing the distortion in the image, due to the type of the screen used.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

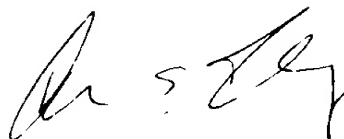
Mecklenborg (US Patent Number 4,657,512) shows a vehicle simulator visual system for training two individuals; said system comprises two projectors, each of which has a polarizer to polarize the individual light images in opposite directions in a circular manner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (703)308-6367. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703)308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)308-5841 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.



Christopher Mahoney
Primary Examiner
Art Unit 2851

Magda Cruz
Patent Examiner
April 22, 2001